

REMARKS

Claims 1 – 16 are now pending in the application. In response to the Office Action mailed October 27, 2006, Applicant respectfully requests reconsideration. Claims 1 – 16 were previously pending in this application. Claims 15 and 16 have been amended. No new matter has been added. Claims 1 – 16 are pending for examination with Claims 1 and 9 being independent. The application is believed to be in condition for allowance.

Rejection of Claims Under 35 U.S.C. § 112, Second Paragraph

Claims 9 – 16 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, Claims 15 and 16 should depend to Claim 9 instead of Claim 1. In response, Claims 15 and 16 have been amended to address the Examiner's concerns. No new matter has been added. Claims 15 and 16 are believed to meet the requirements of 35 U.S.C. § 112, second paragraph. Reconsideration of the rejections under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Summary of Embodiments of Applicant's Invention

An example of one embodiment of Applicant's invention is described below to highlight some aspects of the invention. This embodiment is described primarily in Applicant's specification at page 4, paragraphs 56 – 66 and Figure 6. It should be appreciated that the description below is merely an example of one of many embodiments that fall within the scope of Applicant's claims and is provided merely for the purpose of highlighting some aspects of Applicant's invention.

The application relates to a technique for read error failover processing in a mirrored disk system such as a Redundant Array of Inexpensive Disks (RAID) system. After receiving a read error of a particular Logical Block Address (LBA_i) to a RAID, rather than simply switching over to a mirror, M_x, the RAID controller first checks to see whether the disk that caused the error can successfully reassign an LBA_i to a spare sector. An attempt is made to write the data back to the offending disk P_x at the logical block LBA_i that caused the error. This permits the primary P_x to be salvaged without switching to its mirror M_x.

Rejection of Claims Under 35 U.S.C. § 103

Claims 1 – 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jeffries et al., U.S. Patent No. 5,974,544 (“Jeffries”) in view of George, U.S. Patent No. 6,993,679. Applicant respectfully disagrees with these rejections for the reasons set forth below.

Jeffries illustrates a disk controller that maintains two representations of all drive defects, a logical defect list and a physical defect list. When the controller 100 determines that a block of data is bad, the controller 100 allocates space for the respective stripe in an alternate block, recovers the data in the stripe, and writes the recovered data to the newly allocated stripe. The controller 100 then updates the logical and physical defect lists in memory with remapped information and which drive failed. (See Jeffries, Colum 15, lines 5 – 10; FIG. 14). Although Jeffries discusses a method for defect tracking and writing data to a new stripe, nowhere in the cited reference discusses an attempt to write back to the offending disk before abandoning the offending disk. Claim 1 requires “writing the same data thereby retrieved to the LBA_i on the primary disk portion for which the error was specified.” Jeffries does not teach or suggest writing the same data thereby retrieved to the LBA_i on the primary disk portion for which the error was specified. The Examiner actually agrees as indicated in the Office Action at page 4.

Likewise, George does not teach this feature. By writing the same data thereby retrieved to the LBA_i on the primary disk portion for which the error was specified in the Applicant’s invention, an attempt is made to salvage the primary disk. Salvaging the primary disk provides an advantage in several ways. First, the disk which caused the error is prevented from becoming abandoned. Thus, its contents need not be replaced, nor must it be regenerated. Second, performance is no longer compromised during the regeneration process. Third, the system can check to see whether the primary disk portion which caused the error can successfully reassign one of its LBAs. If, after reassignment, the LBA becomes readable and writable, then the system can retrieve the data that was known to be stored at that LBA, still using the primary disk rather than the mirror disk, M_x. (See Specifications, Pages 4 – 5, paragraphs 65 – 67).

George teaches a method of managing a non-read-list associated with a storage medium. After detecting a bad portion of the storage medium, one or more of the addresses are remapped from a bad portion of the storage medium to a new portion. George does not make an attempt to

salvage the primary disk. Rather, the data in George is copied to the new portion of the storage medium once the addresses are remapped. (See FIG. 1, Reference numbers 10 and 12; Column 4, lines 45 – 67). George does not teach or suggest writing the same data thereby retrieved to the LBA_i on the primary disk portion for which the error was specified.

As should be appreciated from the above discussion relating to Claim 1, Claim 9 also patentably distinguishes from Jeffries and George. Claims 2 – 8 and Claims 10 – 16 are dependent from Claim 1 and Claim 9, respectively, and therefore patentably distinguish from Jeffries and George for at least the same reasons.

Accordingly, withdrawal of these rejections are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 

David J. Thibodeau, Jr.

Registration No. 31,671

Telephone: (978) 341-0036

Facsimile: (978) 341-0136

Concord, MA 01742-9133

Date: March 27, 2007